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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,471	11/15/2003	Tianqing He		2502

7590

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EXAMINER

LU, JIPING

ART UNIT	PAPER NUMBER
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3749

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,471

Applicant(s)

HE ET AL.

Examiner

Jiping Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-23 and 27-43 is/are pending in the application.
- 4a) Of the above claim(s) 11-20,22 and 35-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10, 21, 23, 27-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Status

1. Claims 1, 3-23, 27-43 are now in the case and subject to restriction requirement (35 USC 121). Claims 2, 24-26 are canceled. Claims 11-20, 22, 35-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Claims 1, 3-10, 21, 23 and 27-34 are rejected as follows.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Wennerstrum et al. (U. S. Pat. 4,882,851).

Wennerstrum et al. show an apparatus for drying a sample comprising a sealable chamber 10, cold trap 34, a pump 40 for creating a vacuum and heating means 12 for supplying electromagnetic energy to the interior of the sealable chamber 10, pressure sensors 76 for measuring the vacuum and control means 42 which are arranged same as claimed. The apparatus of Wennerstrum et al. can be used to heat porous sample of construction material and the pump 40 of Wennerstrum et al may evacuate air from the sealable chamber 10 until air pressure in sealable chamber is less than 10 torr.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 27-28, 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Dhaemers (U. S. Pat. 5,546,678).

The drying apparatus of Wennerstrum et al. as above includes all that is recited in claims 27-28 and 30-31 except for the an infrared lamp for heating the chamber and means for measuring humidity in the chamber. Dhaemers teaches a drying apparatus and method with infrared light 73 for heating the chamber 41 (see Fig. 6 and Col. 6, lines 3-6) and a humidistat 112 for measuring humidity in the chamber 41 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the microwave generator 12 of Wennerstrum et al. with an infrared light as taught by Dhaemers in order to supply the heating energy in the infrared range and to provide the drying apparatus and method of Wennerstrum et al. with a humidistat as taught by Dhaemers in order to measuring the humidity in the drying chamber and therefore improve the drying efficiency.

6. Claims 29, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Dhaemers (U. S. Pat. 5,546,678) as applied to claims 5, 28 above, and further in view of Hunter et al. (U. S. Pat. 6,085,443).

The drying apparatus of Wennerstrum et al. as modified by Dhaemers as above includes all that is recited in claims 29, 33-34 except for a load cell for weighing the sample and thus determining the amount of moisture in the sample. Hunter et al teach a concept of using a load cell 50 for weighing the product in bin 40 and thus determining the moisture of the product in bin

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40 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying apparatus and method of Wennerstrum et al. with a load cell as taught by Hunter et al. in order to weigh the sample and determine the amount of the moisture in the sample. With regard to the claim 33, it would have been obvious to one having ordinary skill in the art to weigh the samples on an external scale since applicants have not disclosed that location of weighing solves any state problem in a new or unexpected way or is for any particular purpose which is unobvious to one of ordinary skill and it appears that the claimed feature for removing samples from the chamber and weighing the sample on an external scale does not distinguish the invention over similar features in the prior art which weighing the sample in the chamber.

7. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Dhaemers (U. S. Pat. 5,546,678) as applied to claims 5, 28 above, and further in view of Davis et al (U. S. Pat. 6,410,889).

The drying apparatus and method of Wennerstrum et al. as modified by Dhaemers as above includes all that is recited in claim 32 except for a heating pad for the heating the chamber. Davis et al teach a concept of using a heating pad¹³² for heating the chamber ¹²² same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying apparatus and method of Wennerstrum et al. with a heating pad as taught by Davis et al. in order to improve the heating efficiency.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Sano et al. (U. S. Pat. 4,107,049).

Wennerstrum et al. a method for drying a sample comprising the steps of placing a sample into a sealable chamber 10; creating a vacuum (by pump 40) inside the chamber by evacuating air from the inside of the chamber; passing evacuated air from the sealable chamber through a cold trap 34; and heating the interior of the sealable chamber by supplying heat (thru means 12) to the interior of the sealable chamber 10 same as claimed. Sano et al teach a method for drying porous material with the step of vacuuming the sealable chamber 5 under a pressure of 0.01 to 10 torr. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the drying method of Wennerstrum et al. to include the step of drying the porous material within the sealable chamber under pressure less than 10 torr as taught by Sano et al. in order to obtain an optimal complete drying result.

9. Claims 3-5, 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Sano et al. (U. S. Pat. 4,107,049) as applied to claim 1 above and further in view of Dhaemers (U. S. Pat. 5,546,678).

The drying method of Wennerstrum et al. as modified by Sano et al. as above includes all that is recited in claims 3-5, 7-8 except for the an infrared lamp for heating the chamber and means for measuring humidity in the chamber. Dhaemers teaches a drying method using infrared light 73 for heating the chamber 41 (see Fig. 6 and Col. 6, lines 3-6) and a humidistat 112 for measuring humidity in the chamber 41 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the microwave generator 12 of Wennerstrum et a. with an infrared light as taught by Dhaemers in order to supply the heating energy in the infrared range and to provide the drying method of Wennerstrum et al. with a step of monitoring the vacuum in the chamber by humidistat as taught

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by Dhaemers in order to measuring the humidity in the drying chamber and therefore improve the drying efficiency.

10. Claims 6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Sano et al. (U. S. Pat. 4,107,049) and Dhaemers (U. S. Pat. 5,546,678) as applied to claims 5 above, and further in view of Hunter et al. (U. S. Pat. 6,085,443).

The drying apparatus and method of Wennerstrum et al. as modified by Sano et al. and Dhaemers as above includes all that is recited in claims 6, 9 except for a load cell for weighing the sample and thus determining the amount of moisture in the sample. Hunter et al teach a concept of using a load cell 50 for weighing the product in bin 40 and thus determining the moisture of the product in bin 40 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying method of Wennerstrum et al. with a step of weighing the sample (by a load cell) as taught by Hunter et al. in order to weigh the sample and determine the amount of the moisture in the sample. With regard to the claim 9, it would have been obvious to one having ordinary skill in the art to weigh the samples on an external scale since applicants have not disclosed that location of weighing solves any state problem in a new or unexpected way or is for any particular purpose which is unobvious to one of ordinary skill and it appears that the claimed feature for removing samples from the chamber and weighing the sample on an external scale does not distinguish the invention over similar features in the prior art which weighing the sample in the chamber.

11. Claims 10, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerstrum et al. (U. S. Pat. 4,882,851) in view of Sano et al. (U. S. Pat. 4,107,049) and

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Dhaemers (U. S. Pat. 5,546,678) as applied to claims 5 above, and further in view of Davis et al (U. S. Pat. 6,410,889).

The drying method of Wennerstrum et al. as modified by Sano et al. and Dhaemers as above includes all that is recited in claims 10, 21 except for a heating pad for the heating the chamber. Davis et al teach a concept of using a heating pad¹³² for heating the chamber 122 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying method of Wennerstrum et al. with a step of using heating pad to heat the chamber as taught by Davis et al. in order to improve the heating efficiency.

12. Claims 1 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U. S. Pat. 4,107,049) in view of Wennerstrum et al. (U. S. Pat. 4,882,851).

Sano et al. show an apparatus and a method for drying a porous sample comprising a sealable chamber 5, a pump (not show) for creating a strong vacuum inside the chamber by evacuating air from the inside of the chamber after it is sealed until air pressure inside the chamber is less than 10 torr and heating means (2-4) for heating the interior of the sealable chamber 5 same as claimed. Wennerstrum et al. teach a drying apparatus and method with a cold trap 34 for trapping moisture in the evacuated air Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying apparatus and method of Sano et al. with cold trap as taught by Wennerstrum et al. in order to trap the moisture in the evacuated air.

13. Claims 3-5, 7-8 and 27-28, 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U. S. Pat. 4,107,049) in view of Wennerstrum et al. (U. S. Pat.

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4,882,851) as applied to claims 1 and 23 as above and further in view of Dhaemers (U. S. Pat. 5,546,678).

The drying apparatus and method of Sano et al. as modified by Wennerstrum et al. as above includes all that is recited in claims 3-5, 7-8, 27-28 and 30-31 except for the an infrared lamp for heating the chamber and means for measuring humidity in the chamber. Dhaemers teaches a drying apparatus and method with infrared light 73 for heating the chamber 41 (see Fig. 6 and Col. 6, lines 3-6) and a humidistat 112 for measuring humidity in the chamber 41 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the heating means 2-4 of Sano et al. with an infrared light as taught by Dhaemers in order to supply the heating energy in the infrared range and to provide the drying apparatus and method of Sano et al. with a humidistat as taught by Dhaemers in order to measuring the humidity in the drying chamber and therefore improve the drying efficiency.

14. Claims 6, 9, 29, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U. S. Pat. 4,107,049) in view of Wennerstrum et al. (U. S. Pat. 4,882,851) and Dhaemers (U. S. Pat. 5,546,678) as applied to claims 5, 28 above, and further in view of Hunter et al. (U. S. Pat. 6,085,443).

The drying apparatus and method of Sano et al. as modified by Wennerstrum et al. and Dhaemers as above includes all that is recited in claims 6, 9, 29, 33-34 except for a load cell for weighing the sample and thus determining the amount of moisture in the sample. Hunter et al teach a concept of using a load cell 50 for weighing the product in bin 40 and thus determining the moisture of the product in bin 40 same as claimed. Therefore, it would have been obvious to

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one having ordinary skill in the art at the time the invention was made to provide the drying apparatus and method of Sano et al. with a load cell as taught by Hunter et al. in order to weigh the sample and determine the amount of the moisture in the sample. With regard to the claims 9 and 33, it would have been obvious to one having ordinary skill in the art to weigh the samples on an external scale since applicants have not disclosed that location of weighing solves any state problem in a new or unexpected way or is for any particular purpose which is unobvious to one of ordinary skill and it appears that the claimed feature for removing samples from the chamber and weighing the sample on an external scale does not distinguish the invention over similar features in the prior art which weighing the sample in the chamber.

15. Claims 10, 21, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U. S. Pat. 4,107,049) in view of Wennerstrum et al. (U. S. Pat. 4,882,851) and Dhaemers (U. S. Pat. 5,546,678) as applied to claims 5, 28 above, and further in view of Davis et al (U. S. Pat. 6,410,889).

The drying apparatus and method of Sano et al. as modified by Wennerstrum et al. and Dhaemers as above includes all that is recited in claims 10, 21, 32 except for a heating pad for the heating the chamber. Davis et al teach a concept of using a heating pad¹³² for heating the chamber 122 same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying apparatus and method of Sano et al. with a heating pad as taught by Davis et al. in order to improve the heating efficiency.

Response to Arguments

16. Applicant's arguments filed 9/8/2005 have been fully considered but they are not

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persuasive to overcome the rejection. First, broad apparatus claims presented fail to structurally define over the prior art references. Second, broad claim 23 merely calls for “means for creating a vacuum “may” evacuate air which implies that this function may or may not happen.

Therefore, pump 40 in Wennerstrum patent would meet the claim limitations regarding something may happen but not necessarily will happen, e.g. air evacuation. Since the applicant did not positively claim what his invention is, then, any pump may evacuate air. Third, the applicant keeps arguing the importance of the vacuum less than 10 TORR in apparatus claims. However, the Wennerstrum patent shows an identical structure as broadly claimed. Therefore, Wennerstrum patent is clearly capable to operate air evacuation with vacuum less than 10 TORR (MPEP 2114). Fourth, the applicant questions the status of the non-elected claims. Since there is no generic claim found allowable, then, the restriction remains and is hereby made Final. If and when there is an allowable generic claim should found to be allowable, then, the election of species requirement will be withdrawn. Fifth, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the patent to Dhaemers teaches a drying apparatus and method with infrared light 73 for heating the chamber 41 (see Fig. 6 and Col. 6, lines 3-6) and a humidistat 112 for measuring humidity in the chamber 41, the patent to Hunter et al teach a concept of using a load cell 50 for weighing the product in bin 40 and thus determining

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the moisture of the product in bin 40 and the patent to Davis et al teach a concept of using a heating pad 132 for heating the chamber 122 same as claimed. Therefore, in view of the combined teachings of the prior art references one skilled in the art would be able to derive the broadly claimed invention. It is noted that the applicant has attacked the deficiency of each and every piece of prior art reference but failed to acknowledge the combined teachings of the prior art references as stated in the rejection above. Sixth, the applicant argues that there is no teaching to combine the references regarding patents to Wennerstrum and Sanyo. The examiner disagrees. Wennerstrum patent shows a method for drying a sample comprising the steps of placing a sample into a sealable chamber 10; creating a vacuum (by pump 40) inside the chamber by evacuating air from the inside of the chamber; passing evacuated air from the sealable chamber through a cold trap 34; and heating the interior of the sealable chamber by supplying heat (thru means 12) to the interior of the sealable chamber 10 same as claimed. Sano et al teach a method for drying porous material with the step of vacuuming the sealable chamber 5 under a pressure of 0.01 to 10 torr. Therefore, it is the examiner's position that in view of the combined teachings of the references, it would have been obvious for one skilled in the art to modify the drying method of Wennerstrum et al. to include the step of drying the porous material within the sealable chamber under pressure less than 10 torr as taught by Sano et al. in order to obtain an optimal complete drying result. Seventh, the applicant argues that the Sanyo does not show a heater. The examiner disagrees. Sano et al. (U. S. Pat. 4,107,049) does show an apparatus and a method for drying a porous sample comprising a sealable chamber 5, a pump (not show) for creating a strong vacuum inside the chamber by evacuating air from the inside of the chamber after it is sealed until air pressure inside the chamber is less than 10 torr and heating means 2-4

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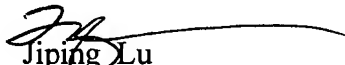
(plasma generator will also generate heat) for heating the interior of the sealable chamber 5 same as claimed. Wennerstrum patent teaches a drying apparatus and method with a cold trap 34 for trapping moisture in the evacuated air. Therefore, it is the examiner's position that in view of the combined teachings of the references, it would have been obvious for one skilled in the art to provide the drying apparatus and method of Sano et al. with cold trap as taught by Wennerstrum et al. in order to trap the moisture in the evacuated air.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jiping Lu whose telephone number is 571 272 4878. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EHUD GARTENBERG can be reached on 571 272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jiping Lu
Primary Examiner
Art Unit 3749

J.L.